

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 2

Amendments to Claims

1. (Currently Amended) A process of forming poly(trimethylene terephthalate) bulk continuous filament yarn comprising:
  - (a) spinning molten poly(trimethylene terephthalate) polymer having a number average molecular weight of at least about 26500 to about 40000, an intrinsic viscosity of about 0.95 to about 1.04 dl/g, and a melt viscosity of at least about 350 up to about 700 Pascals at 250°C and 48.65 per second shear rate;
  - (b) converging the filaments into yarn;
  - (c) cooling the filaments; ~~and~~
  - (d) drawing the filaments at a speed of greater than 3000 meters per minute to produce filaments having a filament denier greater than 10 and yarn having a yarn denier greater than 210; and
  - (e) bulking the drawn filaments.
2. (Cancelled)
3. (Currently Amended) The process of claim 1, wherein the number average molecular weight is from about 27500 to about ~~45000~~ 40000.
4. (Original) The process of claim 1, wherein the number average molecular weight is from about 29000 to about 40000.
5. (Cancelled)
6. (Currently Amended) The process of claim 1, wherein the melt viscosity is from about 400 to about ~~900~~ 700 Pascals at 250°C and 48.65 per second shear rate.
7. (Currently Amended) The process of claim 1, wherein the melt viscosity is from about 450 to about ~~800~~ 700 Pascals at 250°C and 48.65 per second shear rate.

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 3

8. (Original) The process of claim 1, wherein the melt viscosity is from about 500 to about 700 Pascals at 250°C and 48.65 per second shear rate.
9. (Cancelled)
10. (Cancelled)
11. (Original) The process of claim 1, wherein the filament denier is at least 15.
12. (Original) The process of claim 1, wherein the yarn denier is at least 250.
13. (Currently Amended) The process of claim 47 4, wherein the yarn denier is at least 500.
14. (Currently Amended) The process of claim 56 4, wherein the yarn denier is at least 1000.
15. (Original) The process of claim 1, wherein the filaments are drawn at a speed of greater than 3500 meters per minute.
16. (Original) The process of claim 1, wherein the filaments are drawn at a speed of greater than 4000 meters per minute.
17. (Original) The process of claim 1, wherein the filaments are drawn at a speed of greater than 5000 meters per minute.
18. (Cancelled)
19. (Cancelled)
20. (Original) The process of claim 1, further comprising coating the filaments with a spin finish and optionally preintermingling the filaments.

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 4

21. (Cancelled)
22. (Currently Amended) The process of claim 21, further comprising entangling the filaments.
23. (Currently Amended) The process of claim 21, wherein the bulking the drawn filaments are bulked is to form 3-dimensional curvilinear crimp therein.
24. (Original) The process of claim 23, wherein the bulking comprises blowing and deforming the filaments in a hot-fluid jet bulking unit.
25. (Original) The process of claim 1, wherein the filaments are drawn at a draw ratio of about 1.1 to about 4.0.
26. (Currently Amended) The process of claim 47 25, wherein the draw ratio is about 1.2 to about 3.0.
27. (Currently Amended) The process of claim 56 25, wherein the draw ratio is about 1.4 to about 2.2.
28. (Cancelled)
29. (Currently Amended) The process of claim 1 28, wherein the intrinsic viscosity is about 0.98 to about 1.04.
30. (Currently Amended) The process of claim 1 28, wherein the intrinsic viscosity is about 1.00 to about 1.02.
31. (Currently Amended) A process of forming poly(trimethylene terephthalate) bulk continuous filament yarn comprising:
- (a) extruding molten poly(trimethylene terephthalate) ~~polymer~~ having an intrinsic viscosity in the range of about 0.95 to about 1.04 dl/g 1.40, a water content of less than about 100 ppm, a number average molecular weight of

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 5

about 26500 to about 40000 ~~50000~~ and a melt viscosity of about 350 to about 4000 700 Pascals at 250°C and 48.65 per second shear rate through a spinneret to form filaments;

- (b) converging the filaments into yarn;
- (c) cooling the extruded filaments;
- (d) coating the cooled filaments with a spin finish; optionally pre-intermingling the filaments;
- (e) optionally heating the coated filaments to a temperature greater than the glass transition temperature of the poly(trimethylene terephthalate) ~~polymer~~ filaments, but less than about 200°C;
- (f) drawing the optionally heated filaments at a speed of greater than 3000 meters per minute to produce filaments having a denier greater than 10 and yarn having a yarn denier greater than 210;
- (g) bulking the drawn filaments such that the filaments are blown and deformed in three dimensions with a hot bulking fluid to form bulked continuous filaments having random 3-dimensional curvilinear crimp;
- (h) cooling the bulked continuous filaments to a temperature less than the glass transition temperature of the ~~polymer~~ poly(trimethylene terephthalate) filaments; and
- (i) entangling the bulked continuous filaments.

32. (Original) The process of claim 31, wherein the water content is less than about 50 ppm.

33. (Original) The process of claim 31, wherein the water content is less than about 40 ppm.

34. (Original) The process of claim 31, wherein the bulked continuous filaments of (g) are entangled before the cooling in (h).

35. (Cancelled)

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 6

36. (Original) The process of claim 31, wherein the filaments are drawn at a speed of greater than about 3500 meters per minute.

37. (Original) The process of claim 31, wherein the filaments are drawn at a speed of at least about 4000 meters per minute.

38. (Original) The process of claim 31, wherein the filaments are drawn at a speed of at least 5000 meters per minute.

39. (Cancelled).

40. (Cancelled)

41. (Original) The process of claim 31, further comprising ply-twisting and heat setting the filaments into yarn.

42. (Original) Carpet made from the ply-twisted, heat-set poly(trimethylene terephthalate) yarn of claim 41.

43. (New) The process of claim 1, wherein the filaments are drawn at a speed of greater than 3500 meters per minute up to less than 5000 m/min.

44. (New) The process of claim 1, wherein the filaments are drawn at a draw ratio of about 1.1 to about 4.0, the number average molecular weight is from about 29000 to about 40000, the water content is less than about 50 ppm, the melt viscosity is from about 450 to about 700 Pascals at 250°C and 48.65 per second shear rate, and the yarn denier is at least 500.

45. (New) The process of claim 1 wherein the process further comprise providing poly(trimethylene terephthalate) chip and remelting the poly(trimethylene terephthalate) chip in a single screw extruder.

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 7

46. (New) The process of claim 1 wherein the process further comprises providing poly(trimethylene terephthalate) chip and drying the poly(trimethylene terephthalate) chip at about 80 to about 150°C.

47. (New) A process of forming poly(trimethylene terephthalate) bulk continuous filament yarn comprising:

- a. providing poly(trimethylene terephthalate) chip wherein the poly(trimethylene terephthalate) has a number average molecular weight of about 26500 to about 40000, an intrinsic viscosity of about 0.95 to about 1.04 dl/g, and a melt viscosity of about 350 up to about 700 Pascals at 250°C and 48.65 per second shear rate,
- b. melting the poly(trimethylene terephthalate) chip,
- c. extruding the poly(trimethylene terephthalate) to form filaments;
- d. cooling the filaments,
- e. converging the filaments into yarn;
- f. drawing the filaments at a speed of greater than 3000 meters per minute to produce filaments having a filament denier greater than 10 and yarn having a yarn denier greater than 210;
- g. bulking the drawn filaments;
- h. cooling the bulked filaments,
- i. intermingling the cooled filaments, and
- j. winding the intermingled filaments.

48. (New) The process of claim 47 wherein the bulking the drawn filaments is carried out using a bulking unit with a texturing nozzle.

49. (New) The process of claim 47, wherein the filaments are drawn at a speed of greater than 3500 meters per minute.

50. (New) The process of claim 47, wherein the filaments are drawn at a speed of greater than 4000 meters per minute.

Application No.: 10/752399  
Docket No.: SO0033USNA

Page 8

51. (New) The process of claim 47, wherein the filaments are drawn at a speed of greater than 3500 meters per minute up to less than 5000 m/min.
52. (New) The process of claim 47, wherein the draw ratio is about 1.4 to about 2.2.
53. (New) The process of claim 47, wherein the intrinsic viscosity is about 1.00 to about 1.02 dl/g.
54. (New) The process of claim 47, wherein the intrinsic viscosity is about 0.95 to about 1.02 dl/g.
55. (New) The process of claim 47, wherein the process further comprises drying the poly(trimethylene terephthalate) to a water content of less than about 50 ppm.
56. (New) The process of claim 50 wherein:
- the process further comprises drying the poly(trimethylene terephthalate) chip to a water content of less than about 50 ppm prior to remelting the poly(trimethylene terephthalate) chip,
  - the remelting the poly(trimethylene terephthalate) chip is in a single screw extruder;
  - the cooling the bulked filaments is through a cooling drum,
  - the winding the intermingled filaments is on a wind-up machine,
  - the drawing the filaments is at a draw ratio of about 1.1 to about 4.0,
  - the number average molecular weight is from about 29000 to about 40000,
  - the melt viscosity is from about 450 to about 700 Pascals at 250°C and 48.65 per second shear rate,
  - the yarn denier is at least 500, and
  - the speed is greater than 3500 meters per minute.